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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/709,517

05/11/2004

Andrew M. Bober

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EXAMINER

NGUYEN, NGOC YEN M

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

01/22/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/709,517	Applicant(s) BOBER ET AL.	
	Examiner Ngoc-Yen M. Nguyen	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25, 28-35, 39, 43-48 and 71-85 is/are pending in the application.
- 4a) Of the above claim(s) 1-23, 47 and 48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-25, 28-35, 39, 43-46, 71-85 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This application contains claims 1-23, 47 and 48 are drawn to an invention nonelected with traverse in the reply filed on May 8, 2008. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 24-25, 28-35, 39, 43-46, 71-85 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 24, there is no sufficient support in the instant specification for “the first component ... and a *first solvent*”; for “the second component ... and a *second solvent*”; for “*more than 1 ppm (w/w of solution) of chlorine dioxide forms within five minute*”.

In claim 71, there is no sufficient support for “a first solvent”; for “a second solvent”; for “a third solvent”; for “*more than 1 ppm (w/w of solution) of chlorine dioxide forms within five minutes*”

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24-25, 28-35, 39, 43-46, 71-85 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 24 and 71, it is unclear if the ppm for the chlorite in the first component is based on the first component or based on the combined first and second components. If the former is true, there would be no support in the instant specification for this limitation; of the latter is true, since the instant claim is drawn to a multi component chlorine dioxide producing sanitizing and disinfecting *system* comprising a first component and a second component, before the components are combined, it is unclear how the concentration of the chlorite in the first component can be defined by the its concentration in the combined solution because, for example, the concentration of the chlorite in the combined solution depends on the concentration of the chlorite solution and the amount of the chlorite solution used, i.e. if 200 g of 10 wt% solution of chlorite would give the combined solution a chlorite concentration of 300 ppm then 100 g of 20 wt% solution of chlorite or 400 g of 5 wt% solution of chlorite would also give the combined solution the same 300 ppm concentration for the chlorite. The ppm or the reducing agent in the second component is indefinite for the same reasons as stated above.

Claims 24 and 71 are further indefinite because it is unclear if the limitation in the parentheses, i.e. "w/w of solution" is positively required; it is also unclear what is the "solution", the solution of the first component or the second component or the combined solution? For the second component, the activator is required to be present "in an amount sufficient to reduce pH to 5 or lower"; however, it is unclear what is required to have the pH of 5 or lower, the second component or the combined solution. If the former is true, there would be no sufficient support for such limitation; if the latter is true, this limitation is indefinite for the same reasons as stated above for the chlorite concentration in the first component.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

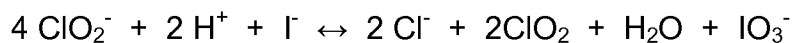
For the below 102 rejections, the chlorite concentration, the reducing agent concentration and the pH (obtained by using sufficient amount of activator) are assumed to be for the combined solution (i.e. a combination of first and second components). However, since the instant claims are drawn to a multi component system before the combining step, these limitations are considered as future intended use. Also, the limitation of "wherein upon combining the first component and the second component, more than 1 ppm (w/w of solution) of chlorine dioxide forms within

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five minutes” is also considered as an intended use limitation. It is well settled that terms merely setting forth intended use for, or a properly inherent in, an otherwise old composition do not differentiate the claimed composition from those disclosed in the prior art. ***In re Pearson 181 USPQ 641***. Also, it is contrary to spirit and patent laws that patents be granted for old compositions of matter based on new uses of compositions where uses consists merely in employment of compositions; patentee is entitled to every use of which invention is susceptible, whether such use be known or unknown to him. ***In re Thrau, 57 USPQ 324***.

Claims 24-25, 28-34, 39, 43-46 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 02/23993.

WO '993 discloses the generation of chlorine dioxide through the reaction of at least one iodo-compound having at least one iodine atom and at least one ionic chlorite compound (note page 7, lines 20-22) according the following reaction:



(note equation on line 16 of page 8).

For component a): the chlorite compound is preferably a salt of an alkali metal, an alkaline earth metal, a transition metal, or mixture thereof. Examples of useful chlorites include sodium chlorite and potassium chlorite (note page 10, lines 22-30).

For component b): WO '993 further teaches that acids or salts may be added for controlling pH or for buffering, or as a background chlorine dioxide generation aide. Such acids or salts include, but are not limited to, aliphatic or olefinic carboxylic acids or

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carboxylate salts, aromatic carboxylic acids or salts, inorganic acids or salts, etc. Some more specific examples include acids or salts of boric, phosphoric, sulfuric, and so forth and mixtures thereof (note page 21, line 26 to page 22, line 11). Since phosphoric acid is specifically mentioned in WO '993, such disclosure is considered as having sufficient specificity for anticipation rejection.

For component c): the iodide salts useful herein are those having the following general formula: MI_n where M is a metal ion and is selected from alkali metals, alkaline earth metals, transition metals, and mixtures thereof, and n is a number equal to the metal valency (note page 9, lines 4-8). The iodide salts as disclosed in WO '993 is considered the same as the claimed "reducing agent".

For component d): WO '993 discloses that solvents may be used depending on the form the compositions are supplied in and some useful solvents include, but are not limited to, water, glycerin, sorbitol, etc.

In Example 58, upon addition of chlorite salt (which is considered to be the same as the claimed first component) to a composition as listed in Table 21 (which is considered the same as the claimed second component because it contains both the activator, i.e. citric acid and/or lactic acid, and the reducing agent, i.e. potassium iodide), a rapid (<10 seconds) generation of chlorine dioxide was observed. In the composition, citric acid, potassium iodide, and deionized water are used as claimed components a), b) and c), respectively (note page 51). The potassium iodide used in WO '993 would inherently be "antimicrobial in nature" as required in the instant claim 32.

For claim 34, 45-46, WO '993 further discloses that other ingredients may be added to the composition including surfactants, emulsion stabilizers, buffers (the last two can be considered as the claimed "stabilizing agent") (note page 12, lines 20-26). The surfactant can be nonionic, cationic, anionic or amphoteric surfactants (note page 16, lines 3-5).

For claim 39, even when the intended use is taken into account, i.e. the activator is used in an amount sufficient to reduce the pH of the combined solution to a pH of 5 or lower, WO '993 teaches that the compositions are not dependent on pH for chlorine dioxide generation, and chlorine dioxide generation will occur at any pH from about 1 to about 11, and preferably about 2 to about 11. The lower values of "about 1" and "about 2" are well within the claimed ranges of "below 5" and "below 3".

For claims 43-44, the molar ratio of chlorite to iodo-compound is 2 or more (note page 11, lines 12-15). The value of "2" is well within the claimed ranges.

The "system" as disclosed in WO '993 anticipates the claimed product.

Claims 24-25, 38-33, 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Madray 6,231,830.

Madray '830 discloses a method for generating molecular chlorine dioxide by reacting in a solution an alkali metal chlorite with an alkali metal iodide, wherein said alkali metal chlorite is from about 0.03% to about 5% by weight of said solution and said alkali metal iodide is present in an amount of from about 1.4% to about 43% by weight of the alkali metal chlorite (note claim 1).

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In one preferred embodiment, stopped vials containing 60 cc of deionized water (which is considered the same as the claimed "solvent" and "diluent"), with $\text{Na}_2\text{PO}_4 \cdot 7\text{H}_2\text{O}$ and different amounts of 25% NaClO_2 (which is the same as the claimed metal chlorite and the combination of the water $\text{Na}_2\text{PO}_4 \cdot 7\text{H}_2\text{O}$ and chlorite is considered as the claimed first component), received 0.00625 g KI (which is the same as the claimed reducing agent), 0.05 g KH_2PO_4 , and 0.025 g 0.1 N H_3PO_4 (which is the same as the claimed activator, i.e. phosphoric acid) (note column 7, lines 3-11). The combination of KI, KH_2PO_4 and H_3PO_4 is considered as the claimed second component.

Even when the chlorite and the reducing agent concentrations are taken into consideration that they are at the claimed values in the combined solution, Madray '830 discloses that the lower value of "about 0.03%" for the metal chlorite fairly teaches a value that slightly less than 0.03% or 300 ppm as required in the instant claim. Madray '830 also discloses that the amount of chlorite can be in an amount from about 0.01% to about 5% by weight of the composition (note column 4, lines 33-35), the value of "about 0.01%", or about 100 ppm, is well within the claimed range. When the value for the metal chlorite is "about 0.03%", or 300 ppm, the amount of alkali metal iodide would be from $(1.4\% * 300 \text{ ppm}) = 4.2 \text{ ppm}$ to $(43\% * 300 \text{ ppm}) = 129 \text{ ppm}$. The lower value of 4.2 ppm is well within the claimed range of "less than 50 ppm".

The molar ratio of the chlorite to the iodide in Madray '830 is calculated to be about 8.7 to 65 based on claim 4, the amount of KI is from about 2.8 to 20.9% by weight of the NaClO_2 (with MW of KI and NaClO_2 being 166 and 90.5 g/mol, respectively). The lower value of 8.7 is well within the claimed ranges.

The "system" as disclosed in Madray '830 anticipates the claimed product.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24-25, 28-35, 39, 43-46, 71-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO '993, optionally further in view of Hamilton et al (2001/0038805) and Madray '830.

WO '993 discloses a process for producing chlorine dioxide as stated in the above rejection.

In the event that the number of embodiments disclosed in WO '993 is too large for anticipation, it would have been obvious to one of ordinary skill in the art to select any embodiments among the specifically disclosed embodiments, see *Merck & Co. v. Biocraft Labs.*, 874 F.2d 804, 807, 10 USPQ2d 1843, 1846 (Fed. Cir. 1989).

For other values beside the end points for pH, molar ratio of chlorite to iodide, the ranges disclosed in WO '993 overlap the claimed ranges. With respect to the encompassing and overlapping ranges previously discussed, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time of invention to select the portion of the prior art's range which is within the range of the applicants' claims because it has been held *prima facie* case of obviousness to select a value in a

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known range by optimization for the results. *In re Boesch*, 205 USPQ 215. Additionally, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness. *In re Malagari*, 182 USPQ 549.

For claim 35, WO '993 does not specifically disclose the use of ascorbic acid in the process of producing chlorine dioxide, however, it would have been obvious to one skilled in the art to select any suitable acid (which can be also a stabilizer) or suitable stabilizer in order to facilitate the formation of chlorine dioxide.

Optionally, Hamilton '805 can be applied to teach an apparatus for delivery of gas, such as chlorine dioxide (note claim 1). The reactants for producing chlorine dioxide are an aqueous soluble acid and an aqueous soluble chlorite (note paragraph [0098]). The acid can be citric acid, phosphoric acid, ascorbic acid, etc. and mixtures thereof (note paragraph [0099]). Hamilton '905 fairly teaches that phosphoric, citric acid and ascorbic acid are analogous acids for the process of producing chlorine dioxide from a chlorite. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use ascorbic acid instead of or in addition to the phosphoric acid as disclosed in WO '993 because using a substituting one acid with an analogous acid or using a combination of two analogous acids for the same purpose is well within the skill of the artisan.

Hamilton '905 can be further applied to teach that the presence of other ingredients such as stabilizers, and buffers to control the pH is desired (note paragraph

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[0104]). Thus, it would have been obvious to one skilled in the art to select any appropriate compound as the stabilizer for the process of the producing chlorine dioxide from chlorite as disclosed in both WO '993 and Hamilton '905.

When the intended use limitations as stated above, i.e. the concentrations of the chlorite and the reducing agent in the combined solution, are taken into account, WO '993 discloses that the reducing agent, i.e. KI, can be used at 50 ppm (note Example 20 in Table 5, page 38). For the amount of chlorite used, WO '993 discloses that while maintaining a constant level of iodide, it appears that the yields of chlorine dioxide, while being dependant on the ratio of chlorite to iodide of about 2 or greater, are more related to iodide level than to the iodide/chlorite yield, with increasing chlorite concentrations. The data in Examples 7-11 shows that excess chlorite does not interfere with chlorine dioxide production (note page 31, lines 11-19). Thus, the amount of chlorite used is not seen as being critical, as long as the chlorite/iodide ratio is greater than about 2, and it would have been obvious to one skilled in the art to optimize the amount the chlorite used in the process of WO '993 to obtain a chlorine dioxide solution with a preferred concentration of about 1 ppm to about 250 ppm (note page 11, lines 6-9).

Optionally, Madray '830 can be applied as stated above to teach that in a process for producing chlorine dioxide at a concentration of about 2-200 mg/l, the alkali metal chlorite is from 0.03% to about 5% by weight of the solution (note claim 1).

For the order of adding the reactants, see Ex parte Rubin, 128 USPQ 440 (Bd. App. 1959) (Prior art reference disclosing a process of making a laminated sheet wherein a base sheet is first coated with a metallic film and thereafter impregnated with

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a thermosetting material was held to render prima facie obvious claims directed to a process of making a laminated sheet by reversing the order of the prior art process steps.). See also *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) (selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results); *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) (Selection of any order of mixing ingredients is prima facie obvious.)

Claims 24-25, 28-35, 39, 43-36, 71-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Madray '830 in view of WO '993, and optionally further in view of Hamilton '805.

Madray '830 discloses a process for producing chlorine dioxide as stated in the above rejection.

For other values beside the end points in Madray '830, the ranges disclosed in Madray '830 for the amount of chlorite, iodide, ratio of these two compounds, overlap the claimed ranges, see *In re Malagari* as stated above.

For the reaction time, Madray '830 discloses that the production of 5 mg/l of chlorine dioxide is in less than 30 minutes (note column 6, lines 20-24). The range of "less than 30 minutes" fairly suggests the claimed "less than 5 minutes". Furthermore, the "effective quantity" as required in the instant claims can be much lower than 5 mg/l, thus, it would take less time in Madray '830 to produce the "effective quantity" of chlorine dioxide. In any event, since the amounts of the chlorite and iodide as disclosed in Madray '830 are similar to the amounts required in the instant claims, and the

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"composition" of Madray '830 has all the required components as listed in the instant claim 1, an "effective quantity" of chlorine dioxide would inherently be produced in less than five minutes in the process of Madray '830.

Madray '830 does not disclose the presence of a surfactant and a low pH for "the solution".

WO '993 is applied as stated above to teach that a surfactant is a desired component to add to the process for producing chlorine dioxide from chlorite (note page 16, lines 3-5). WO '993 is also teaches that a process using similar reactants, i.e. chlorite, iodide, phosphoric acid, can be carried at a wide pH range, i.e. 1 to 11, to produce chlorine dioxide (note page 21, lines 7-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a surfactant and to use a wider pH range in the process of Madray '830, as suggested by WO '993 because these features are desirable in an analogous process.

Optionally, Hamilton '805 can be applied as stated in the above rejection.

Applicant's arguments filed October 23, 2008 have been fully considered but they are not persuasive.

In future responses please refer to the instant specification by page and line numbers or paragraph numbers, not to the PG Publication of this application.

Applicants points out to original claims 26-27, 36-38, 40 and 42 and paragraphs [0022] to [0025] of the published application for support for the new limitations as now

required in the instant claims 24 and 71; however, there is no sufficient support for “first solvent”, “second solvent”, “third solvent”, “more than 1 ppm” in the original claims or in the above mentioned paragraphs (note reasons stated in the above 112, first paragraph rejection).

Applicants argue that WO ‘993 does not teach or suggest a multi component chlorine dioxide producing sanitizing and disinfecting system, wherein the first component comprises a chlorite present in an amount less than 300 ppm (w/w of solution).

As stated in the above 112, 2nd paragraph rejection, it is unclear if the “less than 300 ppm” of the chlorite concentration is based on just the first component or for the combined solution. It is assumed that such concentration is for the combined solution (because there is no support in Applicants' specification that the concentration is for the first component) and such limitation is considered as an intended use which carries no weight in the patentability determination of Applicants' claims.

Applicants argue that Madray does not teach or suggest a system with a pH less than 5.

Again, this limitation is considered as only an intended use; note the reasons as stated above and in the above rejection.

Applicants argue that Hamilton does not teach the use of iodide.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208

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USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Hamilton is not relied upon to teach the use of iodide, it is applied to teach that ascorbic acid can be used in a process of producing chlorine dioxide solution.

Applicants argue that Hamilton is not directed to methods of generating chlorine dioxide by mixing solutions together.

Even Hamilton uses different method for producing chlorine dioxide, however, Hamilton still fairly teaches that citric acid, acetic acid, phosphoric acid, etc. and ascorbic acid are art recognized equivalent acids for the process of producing chlorine dioxide.

Applicants argue that Hamilton does not teach or suggest the use of dilute solutions of chlorite for the generation of chlorine dioxide.

Again, the concentration of the chlorite is considered as an “intended use”. In any event, Madray ‘830 can be applied as stated above to teach the concentration of chlorite in the combined solution of chlorite and other reactants.

Applicants argue that Madray does not suggest a system for generating chlorine dioxide having a component with a pH less than 5.

The limitation of “less than 5” is indefinite for the reasons as stated in the above 112, 2nd paragraph rejection. It is assumed that the claimed is for the combined solution and such limitation is considered as an “intended use”. In any event, WO ‘993 is applied to teach the pH for the production of a chlorine dioxide solution to can be in a range of 1-11, preferably about 3 to 9. WO ‘993 also teaches that acid catalyzed production of chlorine dioxide and raising the pH will drastically increase the time

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required for chlorine dioxide generation to hours, days, or even weeks (note WO '993, page 21, lines 21-25). Thus, it would have been obvious to one of ordinary skill in the art to optimize the pH in the process of Madray '830 within the range as suggested by WO '993 to effectively produce a chlorine dioxide solution with a desired concentration within a reasonable time.

Applicants argue that Madray does not suggest the formation of "more than 1 ppm" of chlorine dioxide within five minutes.

Again, this limitation is considered as an "intended use" because the claimed "system" is a multi component system comprising the first component and the second component because they are mixed together. In any event, Madray '830 discloses that 5 mg/l (5 ppm) chlorine dioxide is produced in less than 30 minutes; this fairly suggests that the process of Madray '830 could produce just slightly more than 1 ppm of chlorine dioxide in much less than 30 minutes, such as within 5 minutes as required in Applicants' claims. Furthermore, when Madray '830 is taken in view of WO '993 to lower the pH, the reaction time would be decreased since WO '993 fairly teaches that the acid catalyze the reaction.

Applicants argue that WO '993 teaches that acidic compositions can irritate the skin and may be destructive to equipment and surfaces.

The quoted portion of WO '993 refers to the prior art, WO '993 teaches that the formation of chlorine dioxide using the compositions as disclosed in WO '993 occurs at an unexpectedly rapid rate even at near neutral pH values of about 4 to 8. This is a surprising result in that typically, acid catalyzed production of chlorine dioxide takes

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place at an unacceptably low rate at such high pH values, however, the generation of chlorine dioxide using the compositions and methods of the claimed invention in WO '993 does occur more rapidly at certain pH values so that it is not entirely pH independent and the pH is preferred to be at about 3 to about 9 (note page 21, lines 11-20). Clearly, WO '993 does not teach away from carry out the process at lower pH, such as "about 3". Furthermore, Applicants' claims do not limit the use of the chlorine dioxide, when it is formed by mixing the first component and second component, to the skin of humans or animals, so irritation is not a concern. It should be noted that the compositions as disclosed in WO '993 and in Madray comprises two major reactants, namely KI (iodo-compound or alkali metal iodide) and chlorite (note claim 1 of WO '993 and claim 1 of Madray).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner can normally be reached on Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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nmn
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